Amendments in the Claims

Please cancel Claim 1.

Please amend Claims 2-7, 9, 29-30, 67-68, 115, 118 and 127 as shown in the following list of Claims 1-135:

1. (Canceled)

2. (Currently amended) A solid state electrical switch as in Claim ~~1~~ 16, wherein substantially no current flows in said control circuit during said "off" state.

3. (Currently amended) A solid state electrical switch as in Claim ~~1~~ 16, wherein said control circuit is powered via said first and second terminals.

4. (Currently amended) A solid state electrical switch as in Claim ~~1~~ 16 wherein, said control circuit includes a dynamic feedback circuit, said dynamic feedback circuit through said control signal triggering said semiconductor switch during said "on" state into conducting at the beginning of each half-cycle of an AC signal of said AC power source.

5. (Currently amended) A solid state electrical switch as in Claim ~~1~~ 16, wherein said control circuit includes only solid state static components.

16. (Currently amended) A solid state electrical switch for controlling a electrical load, comprising:

a first terminal;

a second terminal;

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a semiconductor switch coupled by said first terminal and said second terminal to form with said electrical load a series circuit across said AC power source, said semiconductor switch becoming conducting in response to receiving a control signal at a control terminal, said solid state electrical switch being in an "on" state when said semiconductor switch is conducting and in an "off" state when said semiconductor switch is not conducting; and

a control circuit providing said control signal, said control circuit being coupled to said first and second terminals in a parallel configuration with said semiconductor switch, wherein current in said control circuit has no current path in said "off" state ~~A solid state electrical switch as in Claim 1~~, wherein said control circuit, which receives an electrical signal, comprises:

a rectifier receiving, during said "off" state, an AC signal from said AC power source and rectifying said AC signal to provide a rectified signal; and

a capacitor which is (a) coupled to receive said rectified signal during said "off" state; and (b) discharged in response to said electrical signal to generate said control signal, thereby rendering said semiconductor switch conducting.

17. (Currently amended) A solid state electrical switch as in Claim ~~1~~ 16, further comprising an overcurrent protection circuit which causes said semiconductor switch to become non-conducting when a current in said load device exceeds a predetermined value.

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8. (Original) A solid state electrical switch as in Claim 7, wherein said overcurrent protection circuit comprises a current detector coupled to provide an electrical signal indicative of the current in said load device.

9. (Currently amended) A solid state electrical switch as in Claim ~~1~~ 6, further comprising a touch panel electrically coupled to said control circuit, said touch panel providing said electrical signal received at said control circuit, when said touch panel is electrically coupled to an external agent.

10. (Original) A solid state electrical switch as in Claim 9, wherein said electrical signal is provided by the impedance between said external agent and a ground reference.

11. (Previously amended) A solid state electrical switch as in Claim 9, wherein said electrical signal includes a component provided by electromagnetic radiation collected by said external agent.

12. (Previously amended) A solid state electrical switch as in Claim 10, wherein said impedance includes a resistive component.

13. (Previously amended) A solid state electrical switch as in Claim 10, wherein said impedance includes a capacitive component.

14. (Previously amended) A solid state electrical switch as in Claim 9 wherein said electrical signal is provided by a complementary effect resulting from two or more of: a component provided by electromagnetic radiation collected by said external agent, a resistive component in an impedance of said agent to ground, a capacitive component of said impedance, and an inductive component of said impedance.

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15. (Original) A solid state electrical switch as in Claim 6, said control circuit further comprising a gain circuit-responsive to said electrical signal, said gain circuit coupling said rectified signal to said control terminal in response to said electrical signal.

16. (Original) A solid state electrical switch as in Claim 15, wherein said gain circuit comprises a bipolar transistor.

17. (Previously amended) A solid state electrical switch as in Claim 16, wherein said bipolar transistor comprises an NPN bipolar transistor and said gain circuit further comprises a diode coupled in an antiparallel manner between a base terminal of said bipolar transistor and an emitter terminal of said bipolar transistor, a collector terminal of said bipolar transistor being coupled to receive said rectified signal.

18. (Previously amended) A solid state electrical switch as in Claim 16, wherein said bipolar transistor comprises a PNP transistor, and said gain circuit further comprises a diode coupled in an antiparallel manner between a base terminal of said bipolar transistor and an emitter terminal of said bipolar transistor, said emitter terminal being coupled to receive said rectified signal.

19. (Original) A solid state electrical switch as in Claim 6, wherein said semiconductor switch becomes non-conducting when said AC signal crosses zero, whereupon said rectifier signal charges said capacitor resulting in a charging current providing said control signal.

20. (Original) A solid state electrical switch as in Claim 15, said control circuit further comprising a second gain circuit responsive to a second electrical signal, said second gain circuit providing a bypass signal path between said control terminal and a common

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ground of said control circuit, thereby preventing said control signal from reaching said semiconductor switch.

45 21. (Original) A solid state electrical switch as in Claim 20, wherein said second gain circuit comprises a bipolar transistor.

46 22. (Original) A solid state electrical switch as in Claim 21, wherein said second gain circuit further comprises a diode coupled in an antiparallel manner between a base terminal of said bipolar transistor and an emitter terminal of said bipolar transistor.

47 23. (Original) A solid state electrical switch as in Claim 20, further comprising an overcurrent protection circuit providing said second electrical signal when a current in said semiconductor switch exceeds a predetermined value.

46 24. (Original) A solid state electrical switch as in Claim 20, further comprising an initialization circuit including a second capacitor coupled between said control terminal and said common ground, said second capacitor having a capacitance larger than the capacitance of said capacitor of said control circuit.

49 25. (Original) A solid state electrical switch as in Claim 24, wherein said second capacitor is coupled to said control terminal by a diode.

50 26. (Original) A solid state electrical switch as in Claim 24, wherein said initialization circuit further comprising a resistor coupled to discharge said second capacitor to said common ground.

51 27. (Original) A solid state electrical switch as in Claim 6, further comprising a zero-crossing circuit coupled to receive said rectified signal and coupled to said control

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terminal, said zero-crossing circuit preventing said control signal from reaching said semiconductor switch except when said AC signal crosses zero.

28. (Original) A solid state electrical switch as in Claim 6, wherein said rectifier comprises a diode bridge and said semiconductor switch comprises a silicon controlled rectifier (SCR).

29. (Currently amended) A solid state electrical switch as in Claim ~~1~~ 6, wherein said semiconductor switch comprises a triode AC switch (TRIAC) coupled to receive said control signal.

30. (Currently amended) A solid state electrical switch as in Claim ~~1~~ 6, wherein said semiconductor switch comprises antiparallel silicon controlled rectifiers (SCRs) triggered by said control signal.

31. (Original) A solid state electrical switch as in Claim 6, wherein said rectifier comprises a SCR controlled bridge rectifier.

32. (Original) A solid state electrical switch as in Claim 6, wherein said control circuit further comprises a resistor coupled in series with said capacitor between an output terminal of said rectifier and said control terminal.

33. (Original) A solid state electrical switch as in Claim 6, wherein said control circuit further comprises an attenuator circuit coupled between said capacitor and said control terminal.

34. (Original) A solid state electrical switch as in Claim 33, wherein said attenuator circuit comprises a voltage divider circuit.

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35. (Original) A solid state electrical switch as in Claim 24, wherein said initialization circuit further comprises a resistor coupled in parallel with said second capacitor, wherein the time constant corresponding to the product of the resistance of said resistor and the capacitance of said second capacitor exceeds the charging time constant of said capacitor of said control circuit.

36. (Original) A solid state electrical switch as in Claim 24, wherein said initialization circuit operates to ensure said semiconductor switch is non-conducting upon power up.

37. (Original) A solid state electrical switch as in Claim 24, wherein said initialization circuit operates such that, when a power interruption occurs while said semiconductor switch is conducting, said semiconductor switch becomes conducting if power returns within a predetermined time interval, and becomes non-conducting when power returns after said predetermined time interval.

38. (Original) A solid state electrical switch as in Claim 20, wherein said second gain circuit comprises a complementary cascade amplifier.

39. (Original) A solid state electrical switch as in Claim 9 wherein said touch panel is coupled to said control circuit through a current limiting resistor.

40. (Original) A solid state electrical switch as in Claim 9 wherein said touch panel is coupled to said control circuit through a capacitor.

41. (Original) A solid state electrical switch as in Claim 9 further comprising a low pass filter coupled to an input terminal of said control circuit.

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42. (Original) A solid state electrical switch as in Claim 9, wherein said touch panel comprises a metallic surface.

43. (Original) A solid state electrical switch as in Claim 42, wherein said metallic surface is coated with a resistive material or an insulator.

44. (Original) A solid state electrical switch as in Claim 8, wherein said current detector comprises a transformer.

45. (Original) A solid state electrical switch as in Claim 44, wherein said transformer provides a voltage output signal indicative of said current in said load device.

46. (Original) A solid state electrical switch as in Claim 7, wherein said overcurrent protection circuit comprises temperature-sensitive components, such that said predetermined value of said overcurrent protection circuit varies with temperature of the ambient.

47. (Original) A solid state electrical switch as in Claim 46, wherein said predetermined value of said overcurrent protection circuit varies with temperature of said solid state electrical switch.

48. (Original) A solid state electrical switch as in Claim 7, wherein said overcurrent protection circuit comprises:

a rectifier receiving said signal indicative of the current in said load device to provide a signal indicative of said current in said load device; and

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a threshold component coupled to receive said signal indicative of the magnitude of said current in said load device, said threshold component becoming conducting when said magnitude exceeds a predetermined value.

49. (Original) A solid state electrical switch as in Claim 48, wherein said threshold component comprises a forward-biased silicon diode.

50. (Original) A solid state electrical switch as in Claim 48, wherein said threshold component comprises a Zener diode.

51. (Original) A solid state electrical switch as in Claim 48, wherein said threshold component comprises a 4-layer Shockley diode.

52. (Original) A solid state electrical switch as in Claim 48, wherein said rectifier comprises a Zener diode.

53. (Original) A solid state electrical switch as in Claim 48, wherein said rectifier comprises a diode bridge.

54. (Original) A solid state electrical switch as in Claim 48, further comprising a resistor network between said rectifier and said threshold component, said resistor network including a thermistor.

55. (Original) A solid state electrical switch as in Claim 27, wherein said zero-crossing circuit comprising a transistor coupling said control terminal to common ground, when said instantaneous level of said rectified signal is above said predetermined value.

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56. (Previously amended) A solid state electrical switch as in Claim 55, wherein said transistor is controlled by the output signal of a voltage divider between an output terminal of said rectifier and a common ground.

57. (Original) A solid state electrical switch as in Claim 56, said zero-crossing circuit further comprising a light-emitting diode and a Zener diode connected in series with said voltage divider.

58. (Original) A solid state electrical switch as in Claim 9, further comprising an audio response circuit for providing an audible sound to said external agent upon contact with said touch panel.

59. (Original) A solid state electrical switch as in Claim 58, wherein said audio response circuit comprises a Zener diode and a piezoelectric speaker element connected in series across an output terminal of said rectifier and a common ground.

60. (Original) A solid state electrical switch as in Claim 24, wherein said second capacitor comprises an electrolytic capacitor and an unpolarized capacitor coupled in parallel.

61. (Original) A solid state electrical switch as in Claim 9, wherein said touch panel is mounted in a plane offset from a mounting plate.

62. (Original) A solid state electrical switch as in Claim 9, wherein said touch panel is of a first color, and wherein-said touch panel is mounted on a mounting plate of a second color different from said first color.

63. (Original) A solid state electrical switch as in Claim 20, further comprising a second touch panel electrically coupled to said control circuit, such that upon said touch panel contacting with an external agent, said touch panel provides said second electrical signal.

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64. (Original) A solid state electrical switch as in Claim 63, wherein said first and second touch panels are distinguishable by tactile feel or color.

65. (Original) A solid state electrical switch as in Claim 63, further comprising an audio response circuit for generating distinguishable audible sounds to indicate which of said first and second touch panels is contacted by an external agent.

66. (Original) A solid state electrical switch as in Claim 63, wherein when said first and second panels are each contacted by an external agent substantially simultaneously, said semiconductor switch remains non-conducting.

67. (Currently amended) A solid state electrical switch as in Claim ~~1~~ 16, wherein said semiconductor switch initializes to said "off" mode.

68. (Currently amended) A solid state electrical switch as in Claim ~~1~~ 16, further comprising an optocoupler coupled to said control circuit and receiving an input signal, said optocoupler circuit providing said control circuit an optically isolated output signal corresponding to said input signal, whereupon receiving said optically isolated output signal, said control circuit providing said control signal, thereby rendering said semiconductor switch conductive.

69.-114. (Canceled).

115. (Currently amended) A solid state electrical switch as in Claim ~~1~~ 16, wherein said solid state electrical switch is provided as a component of a multipoint random control system, said multipoint random control system comprising:

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an optocoupler coupled to said solid state electrical switch and to a signal bus. said optocoupler receiving an electrical signal from said signal bus to provide an optically isolated output signal as said control signal at said semiconductor switch; and

a plurality of devices coupled to the signal bus, each device being capable of providing as output signals of said devices said control signal ~~to~~.

116. (Previously added) A solid state electrical switch as in Claim 115, wherein said signal bus include a common ground signal relative to said electrical signal.

117. (Previously added) A solid state electrical switch as in Claim 115, wherein said signal bus provides separate common ground signals relative to said electrical signal.

118. (Currently amended) A solid state electrical switch as in Claim ~~1~~6, further comprising an initialization circuit having a first charging time constant and a first discharging time constant, wherein said first charging time constant being less than said first discharging time constant, wherein when said solid state electrical switch is in said "on" state, a first capacitor is charged according to said first charging time constant, and such that, when said "on" state is interrupted by loss of power in said AC power source, said first capacitor discharges at said first discharging time constant, thereby temporarily preserving a memory of said "on" state.

119. (Previously added) A solid state electrical switch as in Claim 118, wherein said initialization circuit further includes a second discharging time constant less than said first discharging time constant, said second discharging time constant providing a discharge of said first capacitor to reset initialization circuit from said "on" state to said "off' state.

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120. (Previously added) A solid state electrical switch as in Claim 118, wherein said initialization circuit further comprises:

a diode coupled to a first terminal of said first capacitor, a second terminal of said first capacitor being coupled to a ground terminal; and

a resistor coupled between said cathode of said diode and said ground terminal.

121. (Previously added) A solid state electrical switch as in Claim 118, wherein said first capacitor comprises an electrolytic capacitor and a non-polarized capacitor coupled in parallel.

122. (Previously added) A solid state electrical switch as in Claim 42, wherein said metallic surface is coated with a dielectric material.

123. (Previously added) A solid state electrical switch as in Claim 9, wherein said touch panel is coupled to said control circuit through a resistor serially connected with a capacitor.

124. (Previously added) A solid state electrical switch as in Claim 9, wherein said touch panel comprises a resistive surface.

125. (Previously added) A solid state electrical switch as in Claim 9, wherein said touch panel comprises a resistive surface and a dielectric material coated on said resistive surface, thereby providing said touch panel a capacitance.

126. (Previously added) A solid state electrical switch as in Claim 9, wherein said electrical signal being provided as a result of said external agent touching said touch panel with a gloved hand.

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127. (Currently amended) A solid state electrical switch as in Claim ~~1~~ 6, further comprising a light-emitting material provided to render said solid state electrical switch visible in the dark.

128. (Previously added) A solid state electrical switch as in Claim 127, wherein said light-emitting material comprises a phosphate.

129. (Previously added) A solid state electrical switch as in Claim 127, wherein said light-emitting material comprises sulfur.

130. (Previously added) A solid state electrical switch as in Claim 6 further comprising a semiconductor element connected in parallel with said capacitor, said device having a conduction threshold voltage such that when said rectified signal attains a voltage exceeding said conduction threshold voltage, said semiconductor element becomes conducting, thereby discharging said capacitor and generating said control signal.

131. (Previously added) A solid state electrical switch as in Claim 130, wherein said conduction threshold voltage is provided by a breakdown voltage of a transistor.

132. (Previously added) A solid state electrical switch as in Claim 131, wherein said transistor comprises a bipolar transistor.

133. (Previously added) A solid state electrical switch as in Claim 15, wherein said gain circuit has a breakdown voltage, such that when said rectified signal attaining a voltage exceeding said breakdown voltage, said gain circuit becomes conducting, thereby coupling said rectified signal to said control terminal.

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